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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

EGAN, BRIAN P

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,391

Applicant(s)

KAWASHIMA, TADASU

Examiner

Brian P. Egan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION***Claim Interpretation***

1. The limitation in newly added claim 20 stating, "wherein said rubbed surface of the base film is produced by rubbing surface of the base film with at least one of a cotton cloth and a nylon brush" is in the form of a product-by-process limitation. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698 (fed. Cir. 1985). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802 (Fed. Cir. 1983). Therefore, the Applicant must establish an unobvious difference between cotton cloth and nylon brush rubbed surfaces and other forms of surface treatments applied to surfaces, or in the contrary amend the claim such that the claim is limited only to structural limitations rather than process limitations, in order to lend patentable weight to the product-by-process limitation.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed.

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Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-38 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 6,534,172. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have wound the tape of the '172 patent into a roll as claimed by the Applicant based on the fact that the adhesive layer adheres to the base film with an adhesive force sufficient to prevent transfer of the adhesive layer from the base film as disclosed in claim 1 of the '172 patent.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. (#3,876,454) in view of Ewing (#4,587,158) and Taku (JP 07-330929).

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Snell et al. teach an adhesive substrate (see Abstract) comprising a base film (Fig. 2, #1) and an adhesive layer formed on one side of the base film (Fig. 2, #2) wherein the substrate is wound into a roll and the adhesive layer and the base film are in contact with one another (Fig. 1; see Abstract). The adhesive substrate may further comprise a primer layer (Col. 2, lines 51-53) formed on one side of the base film in between the adhesive layer and the base film. The adhesive comprises a natural rubber (Col. 5, lines 43-48). The adhesive layer comprises an adhesive layer starting solution containing an adhesive (Col. 6, lines 47-50; Col. 7, lines 27-31). The base material layer is an elastomeric material mixed with a thermoplastic resin (polyethylene or polypropylene) as well as multiple other additives (i.e., plasticizers, tackifiers, cross-linking agents, fillers, colorants, etc.) (Col. 3, line 57 to Col. 4, line 7; Col. 4, lines 46-50).

Snell et al. are silent with regards to whether the base film is printable and also fail to teach the use of a base film whose surface has been rubbed to improve adhesion.

First, it was notoriously well known in the art at the time Applicant's invention was made to provide a printable base film comprising polyethylene as evidenced by Ewing (see Abstract). Ewing teaches the use of printable base films for the purpose of providing a decorative substrate for an end product (see Abstract). Therefore, depending on the desired end product, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have selected a printable base film in Snell et al. in order to provide a decorative substrate for the end product.

With regards to the rubbing treatment, Taku teaches the use of a rubbing treatment wherein a base film is rubbed prior to an adhesive being applied and then the substrate is dried (see Abstract). The rubbing treatment is not limited to any specific synthetic-resin film although

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polyester, polyimide, and polyamide films are most desirable (p. 3, paragraph [0013]). Taku teaches the use of a rubbing treatment for the purpose of improving the adhesive property of the film (p.5, paragraph [0035]). It would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have combined the teachings of both Snell et al. and Taku since each of the aforementioned references are analogous insofar as being directed at substrates comprising an improved adhesion between the base film and adhesive layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified Snell et al. by treating the base film with a rubbing means as taught by Taku in order to improve the adhesive property of the base film.

6. Claims 4 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Taku (JP '929), and further in view of Kangas et al. (#5,563,023) and Natsume et al. (JP 411322949 A).

Snell et al., Ewing, and Taku teach a printing medium whose adhesion is improved through a rubbing treatment as detailed above. The aforementioned prior art fails to teach the use of a biodegradable colorant in the primer layer.

Kangas et al., however, teach a printing medium wherein a colorant is used in the primer layer (Col. 2, line 64 to Col. 3, line 16). Although Kangas et al. does not explicitly state that the colorant is biodegradable, Kangas et al. teach that the colorant comprises pigments or dyes, a resin binder, and methyl ethyl ketone and propylene glycol monomethylether solvents (Col. 4, line 58 to Col. 5, line 2). It is notoriously well known in the art that these aforementioned materials are biodegradable as evidenced by Natsume et al. (see Abstract). Kangas et al. teach the use of a colorant for the purpose of matching colors within the substrate (Col. 5, lines 4-7). It

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would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art and Kangas et al. since each of the prior art references are analogous insofar as providing primer layers to a substrate to improve adhesive properties – Kangas et al. providing a comparative advantage over the aforementioned prior art in that the primer layer can comprise colorants such that the individual layers and/or the end product can be matched in color.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art by using a biodegradable colorant within the primer layer as taught by Kangas et al. in order to match the colors between the different layers of the substrate while still providing a material that will degrade over time.

7. Claims 5 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Taku (JP '929), and further in view of Dahlquist et al. (#2,532,011).

Snell et al., Ewing, and Taku teach a rubbed adhesive substrate as detailed above. The aforementioned prior art fails to teach that the primer layer comprises a primer layer starting solution containing an adhesive in an organic solvent.

Dahlquist, however, teaches the use of primer layers comprising a primer layer starting solution containing an adhesive in an organic solvent (Col. 5, lines 51-61). Dahlquist teaches the aforementioned primer layer for the purpose of providing a primer layer that is highly cohesive, which strongly anchors to the backing film, and which has a greater adhesion to the adhesive than would the backing film surface (Col. 5, lines 51-55). It would have been obvious to one of

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ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art and Dahlquist since each of the prior art references are analogous insofar as being directed at improving the cohesion of adhesive substrate layers.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified the aforementioned prior art to include a primer layer comprising a primer layer starting solution containing an adhesive in an organic solvent as taught by Dahlquist in order to provide a primer layer that is highly cohesive, which strongly anchors to the backing film, and which has a greater adhesion to the adhesive than would the backing film surface.

8. Claims 7-10, 12-13, 18, 25-27, 30-31, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Taku (JP '929), and further in view of Shinoda et al. (#5,663,288) and Kanshin et al. (JP 08-267968).

Snell et al., Ewing, and Taku teach a printing medium whose adhesion is improved through a rubbing treatment as detailed above. The aforementioned prior art fails to teach the use of biodegradable materials in the printing medium composition.

Shinoda, however, teaches a degradable printing medium (Col. 1, lines 11-25; Col. 3, lines 15-16) comprising polylactic acid film (Col. 3, lines 25-29) with an opaque filler that does not inhibit the biodegradability of the base film (Col. 7, lines 45-48), a natural rubber based adhesive (Col. 9, lines 34-40), and a biodegradable receiving layer on the surface of the printable face (Col. 11, line 49 to Col. 12, line 3). Although Shinoda is silent to whether the polylactic acid is biaxially oriented, it is notoriously well known in the printing media art to use biaxially oriented polylactic acid film as evidenced by Kanshin et al. since biaxially oriented polylactic

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acid is excellent in transparency as well as many other physical properties while still being biodegradable (p. 5, paragraph [0028] of Kanshin et al.). Shinoda explains that conventional adhesive films do not degrade or have a very slow degradation rate in the natural environment (Col. 1, lines 28-42; Col. 2, lines 3-17). Consequently, these films semi-permanently remain when disposed after use and impair the scenery or destruct the living environment of marine organisms when abandoned in the ocean. Further, these films require a large amount of energy for incineration and some films particularly have a problem of developing toxic gas (Col. 2, lines 3-17). As a result, waste disposal of these general purpose resin films has been a serious social problem (Col. 2, lines 3-17). Therefore, one would be motivated to modify the material composition of printing mediums with biodegradable materials to help solve the aforementioned environmental problems. Thus, Shinoda teaches a degradable printing medium for the purpose of providing a degradable adhesive film that is excellent in weatherability and can be degraded and disappeared in a natural environment after use (Col. 3, lines 1-4). Thus, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art with Shinoda since each of the aforementioned prior art references are analogous insofar as being directed at adhesive substrates – Shinoda providing a comparative advantage over the aforementioned prior art in that the adhesive substrates of Shinoda are environmentally friendly.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art to include biodegradable materials as taught by Shinoda in order to provide a degradable adhesive film

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which is excellent in weatherability and can be degraded and disappeared in a natural environment after use.

9. Claims 7-8, 11, 25-26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Taku (JP '929), and further in view of Yoshida et al. (#6,235,825).

Snell et al., Ewing, and Taku teach the use of a printing media as detailed above. The aforementioned prior art fails to teach the use of biodegradable substrates comprising an aliphatic polyester and polylactic acid.

Yoshida et al., however, teach a printing medium (Col. 1, lines 45-48) wherein the base film comprises an aliphatic polyester (Bionelle) (Col. 4, lines 18-23; Col. 11, lines 51-55) and polylactic acid (see Abstract). The base substrate further comprises anti-aging agents ("antioxidants") and opaque fillers ("colorant and ultraviolet absorber") (Col. 6, lines 46-53).

Yoshida et al. teach the use of a biodegradable substrate for the purpose of mirroring the beneficial properties of polyethylene, polypropylene, PVC, PET, and other resins that have excellent flexibility, thermal resistance, and water resistance, while solving for the aforementioned materials failure to degrade in the environment (Col. 1, lines 14-30). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art along with Yoshida et al. since each of the aforementioned references are analogous insofar as being directed at adhesive substrates – Yoshida et al. providing a comparative advantage insofar as providing environmentally friendly materials.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art to include biodegradable materials in the base film such as polylactic acid and aliphatic polyester as taught by Yoshida et al. in order to mirror the beneficial properties of polyethylene, polypropylene, PVC, PET, and other resins that have excellent flexibility, thermal resistance, and water resistance, while solving for the aforementioned materials failure to degrade in the environment.

10. Claims 14-16 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158), Taku (JP '929), Shinoda et al. ('288), and Kanshin et al. (JP '968), and further in view of Auguste et al. (#6,162,858).

Snell et al., Ewing, Taku, Shinoda et al., and Kanshin et al. teach the use of a biodegradable printing media as detailed above. Although the aforementioned prior art teach the use of natural rubber adhesives, the aforementioned prior art fails to explicitly teach the use of a polyisoprene rubber with antiaging agents.

Auguste et al., however, teach the use of a polyisoprene adhesive (Col. 8, lines 32-42) with antiaging agents ("antioxidants") (Col. 5, lines 23-24) for a printable adhesive composite (see Abstract). Auguste et al. teach the use of a polyisoprene adhesive for the purpose of providing an adhesive that is stable when subjected to severe environmental conditions such as wide temperature ranges and high levels of humidity (Col. 2, lines 48-55). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the aforementioned prior art with the teachings of Auguste et al., since each of the prior art references are analogous insofar as providing improved adhesive substrates.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art by using a polyisoprene natural rubber adhesive as taught by Auguste et al. in order to provide an adhesive that is stable when subjected to severe environmental conditions such as wide temperature ranges and high levels of humidity.

11. Claims 17, 19, 35, and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Taku (JP '929), Shinoda et al. ('288), and Kanshin et al. (JP '968), and further in view of Ashida (#6,162,858).

Snell et al., Ewing, Taku, Shinoda et al., and Kanshin et al. teach the use of a biodegradable printing media as detailed above. The aforementioned prior art fails to teach the use of a rubbing treatment on the surface of the printing layer.

Ashida et al., however, teach a printing medium (see Abstract) wherein the printing layer is subject to a rubbing treatment with a cotton cloth (Col. 22, lines 40-41). Ashida et al. teach the use of a rubbing treatment for the purpose of determining the surfaces resistance to scratching (Col. 22, lines 41-42). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art along with Ashida et al. since each of the prior art references are analogous insofar as being directed at improved adhesive substrates.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art to include a rubbing treatment of the printed surface as taught by Ashida et al. in order to determine the surfaces ability to resist scratching.

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12. Claims 1-3 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. (#3,876,454) in view of Ewing (#4,587,158) and Nakata et al. (#5,861,192).

Snell et al. teach an adhesive substrate (see Abstract) comprising a base film (Fig. 2, #1) and an adhesive layer formed on one side of the base film (Fig. 2, #2) wherein the substrate is wound into a roll and the adhesive layer and the base film are in contact with one another (Fig. 1; see Abstract). The adhesive substrate may further comprise a primer layer (Col. 2, lines 51-53) formed on one side of the base film in between the adhesive layer and the base film. The adhesive comprises a natural rubber (Col. 5, lines 43-48). The adhesive layer comprises an adhesive layer starting solution containing an adhesive (Col. 6, lines 47-50; Col. 7, lines 27-31). The base material layer is an elastomeric material mixed with a thermoplastic resin (polyethylene or polypropylene) as well as multiple other additives (i.e., plasticizers, tackifiers, cross-linking agents, fillers, colorants, etc.) (Col. 3, line 57 to Col. 4, line 7; Col. 4, lines 46-50).

Snell et al. are silent with regards to whether the base film is printable and also fail to teach the use of a base film whose surface has been rubbed to improve adhesion.

First, it was notoriously well known in the art at the time Applicant's invention was made to provide a printable base film comprising polyethylene as evidenced by Ewing (see Abstract). Ewing teaches the use of printable base films for the purpose of providing a decorative substrate for an end product (see Abstract). Therefore, depending on the desired end product, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have selected a printable base film in Snell et al. in order to provide a decorate substrate for the end product.

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With regards to the rubbing treatment, Nakata et al. teach the use of a rubbing treatment wherein a base film is rubbed with a rotary brush which may be selected from nylon, non-woven cloth, polypropylene, polyester, or rayon materials (Col. 5, lines 51-66). Nakata et al. teach the use of a nylon brush rubbing treatment for the purpose of improving the adhesive property of the film (Col. 6, line 65 to Col. 7, line 3; see Abstract). It would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have combined the teachings of both Snell et al. and Nakata et al. since each of the aforementioned references are analogous insofar as being directed at substrates comprising an improved adhesion.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified Snell et al. by treating the base film with a nylon brush rubbing means as taught by Nakata et al. in order to improve the adhesive property of the base film.

13. Claims 4 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Nakata et al. ('192), and further in view of Kangas et al. (#5,563,023) and Natsume et al. (JP 411322949 A).

Snell et al., Ewing, and Nakata et al. teach a printing medium whose adhesion is improved through a rubbing treatment as detailed above. The aforementioned prior art fails to teach the use of a biodegradable colorant in the primer layer.

Kangas et al., however, teach a printing medium wherein a colorant is used in the primer layer (Col. 2, line 64 to Col. 3, line 16). Although Kangas et al. does not explicitly state that the colorant is biodegradable, Kangas et al. teach that the colorant comprises pigments or dyes, a resin binder, and methyl ethyl ketone and propylene glycol monomethylether solvents (Col. 4,

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line 58 to Col. 5, line 2). It is notoriously well known in the art that these aforementioned materials are biodegradable as evidenced by Natsume et al. (see Abstract). Kangas et al. teach the use of a colorant for the purpose of matching colors within the substrate (Col. 5, lines 4-7). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art and Kangas et al. since each of the prior art references are analogous insofar as providing primer layers to a substrate to improve adhesive properties – Kangas et al. providing a comparative advantage over the aforementioned prior art in that the primer layer can comprise colorants such that the individual layers and/or the end product can be matched in color.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art by using a biodegradable colorant within the primer layer as taught by Kangas et al. in order to match the colors between the different layers of the substrate while still providing a material that will degrade over time.

14. Claims 5 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Nakata et al. ('192), and further in view of Dahlquist et al. (#2,532,011).

Snell et al., Ewing, and Taku teach a rubbed adhesive substrate as detailed above. The aforementioned prior art fails to teach that the primer layer comprises a primer layer starting solution containing an adhesive in an organic solvent.

Dahlquist, however, teaches the use of primer layers comprising a primer layer starting solution containing an adhesive in an organic solvent (Col. 5, lines 51-61). Dahlquist teaches the

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aforementioned primer layer for the purpose of providing a primer layer that is highly cohesive, which strongly anchors to the backing film, and which has a greater adhesion to the adhesive than would the backing film surface (Col. 5, lines 51-55). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art and Dahlquist since each of the prior art references are analogous insofar as being directed at improving the cohesion of adhesive substrate layers.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified the aforementioned prior art to include a primer layer comprising a primer layer starting solution containing an adhesive in an organic solvent as taught by Dahlquist in order to provide a primer layer that is highly cohesive, which strongly anchors to the backing film, and which has a greater adhesion to the adhesive than would the backing film surface.

15. Claims 7-10, 12-13, 18, 25-27, 30-31, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Nakata et al. (JP '192), and further in view of Shinoda et al. (#5,663,288) and Kanshin et al. (JP 08-267968).

Snell et al., Ewing, and Nakata et al. teach a printing medium whose adhesion is improved through a rubbing treatment as detailed above. The aforementioned prior art fails to teach the use of biodegradable materials in the printing medium composition.

Shinoda, however, teaches a degradable printing medium (Col. 1, lines 11-25; Col. 3, lines 15-16) comprising polylactic acid film (Col. 3, lines 25-29) with an opaque filler that does not inhibit the biodegradability of the base film (Col. 7, lines 45-48), a natural rubber based adhesive (Col. 9, lines 34-40), and a biodegradable receiving layer on the surface of the printable

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face (Col. 11, line 49 to Col. 12, line 3). Although Shinoda is silent to whether the polylactic acid is biaxially oriented, it is notoriously well known in the printing media art to use biaxially oriented polylactic acid film as evidenced by Kanshin et al. since biaxially oriented polylactic acid is excellent in transparency as well as many other physical properties while still being biodegradable (p. 5, paragraph [0028] of Kanshin et al.). Shinoda explains that conventional adhesive films do not degrade or have a very slow degradation rate in the natural environment (Col. 1, lines 28-42; Col. 2, lines 3-17). Consequently, these films semi-permanently remain when disposed after use and impair the scenery or destruct the living environment of marine organisms when abandoned in the ocean. Further, these films require a large amount of energy for incineration and some films particularly have a problem of developing toxic gas (Col. 2, lines 3-17). As a result, waste disposal of these general purpose resin films has been a serious social problem (Col. 2, lines 3-17). Therefore, one would be motivated to modify the material composition of printing mediums with biodegradable materials to help solve the aforementioned environmental problems. Thus, Shinoda teaches a degradable printing medium for the purpose of providing a degradable adhesive film that is excellent in weatherability and can be degraded and disappeared in a natural environment after use (Col. 3, lines 1-4). Thus, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art with Shinoda since each of the aforementioned prior art references are analogous insofar as being directed at adhesive substrates – Shinoda providing a comparative advantage over the aforementioned prior art in that the adhesive substrates of Shinoda are environmentally friendly.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art to include biodegradable materials as taught by Shinoda in order to provide a degradable adhesive film which is excellent in weatherability and can be degraded and disappeared in a natural environment after use.

16. Claims 7-8, 11, 25-26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158) and Nakata et al. ('192), and further in view of Yoshida et al. (#6,235,825).

Snell et al., Ewing, and Nakata et al. teach the use of a printing media as detailed above. The aforementioned prior art fails to teach the use of biodegradable substrates comprising an aliphatic polyester and polylactic acid.

Yoshida et al., however, teach a printing medium (Col. 1, lines 45-48) wherein the base film comprises an aliphatic polyester (Bionelle) (Col. 4, lines 18-23; Col. 11, lines 51-55) and polylactic acid (see Abstract). The base substrate further comprises anti-aging agents ("antioxidants") and opaque fillers ("colorant and ultraviolet absorber") (Col. 6, lines 46-53).

Yoshida et al. teach the use of a biodegradable substrate for the purpose of mirroring the beneficial properties of polyethylene, polypropylene, PVC, PET, and other resins that have excellent flexibility, thermal resistance, and water resistance, while solving for the aforementioned materials failure to degrade in the environment (Col. 1, lines 14-30). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art along with Yoshida et al. since each of the aforementioned references are analogous insofar as being directed at adhesive

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substrates – Yoshida et al. providing a comparative advantage insofar as providing environmentally friendly materials.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art to include biodegradable materials in the base film such as polylactic acid and aliphatic polyester as taught by Yoshida et al. in order to mirror the beneficial properties of polyethylene, polypropylene, PVC, PET, and other resins that have excellent flexibility, thermal resistance, and water resistance, while solving for the aforementioned materials failure to degrade in the environment.

17. Claims 14-16 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158), Nakata et al. ('192), Shinoda et al. ('288), and Kanshin et al. (JP '968), and further in view of Auguste et al. (#6,162,858).

Snell et al., Ewing, Nakata et al., Shinoda et al., and Kanshin et al. teach the use of a biodegradable printing media as detailed above. Although the aforementioned prior art teach the use of natural rubber adhesives, the aforementioned prior art fails to explicitly teach the use of a polyisoprene rubber with antiaging agents.

Auguste et al., however, teach the use of a polyisoprene adhesive (Col. 8, lines 32-42) with antiaging agents ("antioxidants") (Col. 5, lines 23-24) for a printable adhesive composite (see Abstract). Auguste et al. teach the use of a polyisoprene adhesive for the purpose of providing an adhesive that is stable when subjected to severe environmental conditions such as wide temperature ranges and high levels of humidity (Col. 2, lines 48-55). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have

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combined the aforementioned prior art with the teachings of Auguste et al., since each of the prior art references are analogous insofar as providing improved adhesive substrates.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art by using a polyisoprene natural rubber adhesive as taught by Auguste et al. in order to provide an adhesive that is stable when subjected to severe environmental conditions such as wide temperature ranges and high levels of humidity.

18. Claims 17, 19, 35, and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snell et al. ('454) in view of Ewing ('158), Nakata et al. ('192), Shinoda et al. ('288), and Kanshin et al. (JP '968), and further in view of Ashida (#6,162,858).

Snell et al., Ewing, Nakata et al., Shinoda et al., and Kanshin et al. teach the use of a biodegradable printing media as detailed above. The aforementioned prior art fails to teach the use of a rubbing treatment on the surface of the printing layer.

Ashida et al., however, teach a printing medium (see Abstract) wherein the printing layer is subject to a rubbing treatment with a cotton cloth (Col. 22, lines 40-41). Ashida et al. teach the use of a rubbing treatment for the purpose of determining the surfaces resistance to scratching (Col. 22, lines 41-42). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of the aforementioned prior art along with Ashida et al. since each of the prior art references are analogous insofar as being directed at improved adhesive substrates.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicants invention was made to have modified the aforementioned prior art to include a

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rubbing treatment of the printed surface as taught by Ashida et al. in order to determine the surfaces ability to resist scratching.

Response to Arguments

19. Applicant's arguments with respect to claims 1-5 and 7-38 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P. Egan whose telephone number is 703-305-3144. The examiner can normally be reached on M-F, 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 703-308-4251. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


BPE 1/5/04


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1/7/04

1/9/04